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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,659	01/10/2006	Osami Habuchi	Q85706	5610
65565	7590	10/03/2007		
SUGHRUE-265550			EXAMINER	
2100 PENNSYLVANIA AVE. NW			BLAND, LAYLA D	
WASHINGTON, DC 20037-3213				
			ART UNIT	PAPER NUMBER
			1623	
			MAIL DATE	DELIVERY MODE
			10/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/520,659

Applicant(s)

HABUCHI ET AL.

Examiner

Layla Bland

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 10-12 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is a response to applicant's amendment submitted August 27, 2007, wherein claims 5, 6, 8, and 9 are cancelled and claims 1-4, 7, and 10-12 are amended. Claims 7 and 10-12 are withdrawn from consideration as being drawn to non-elected invention. Claims 1-4 are examined on the merits herein.

In view of the cancellation of claims 5, 6, 8, and 9, all rejections made with respect to those claims in the previous office action are withdrawn.

The rejection of claims 1-4 under 35 USC 112, second paragraph, as being indefinite is withdrawn as "or the like" has been removed from the definition given in the specification and "derivative" has been removed from the claims.

The rejections of claims 1-4 under 35 USC 102 as being anticipated by Habuchi et al. and/or Dahlgren et al. are withdrawn because the claims, as amended, are no longer anticipated by either reference.

The following new rejections are necessitated by applicant's amendment submitted August 27, 2007.

**Claim Rejections - 35 USC § 102**

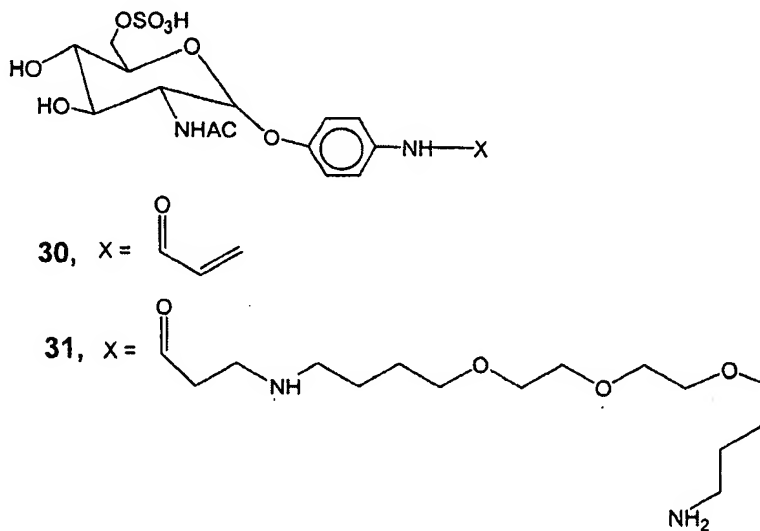
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Aebersold et al. (WO 00/11208, March 2, 2000).

Aebersold et al. teach the following compound [page 89]:



Compound 30 was formed in the presence of sulfur trioxide-pyridine complex [page 52, 24.], as are the claimed compounds (see instant specification, page 10). Therefore, although the compound of Aebersold et al. is shown with  $\text{SO}_3\text{H}$  and not  $\text{SO}_3^-$  in the  $\text{R}_5$  position, it is assumed to be equivalent to the claimed compounds wherein  $\text{R}_5$  is  $\text{SO}_3^-$ .

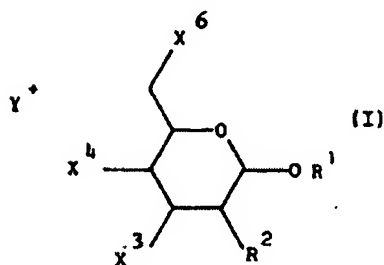
**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahlgren, et al. (WO 97/00879, January 9, 1997, PTO-1449 submitted January 10, 2005) in view of Greene et al. (Protective Groups in Organic Synthesis, Third Edition, John Wiley & Sons, Inc. 1999).

Dahlgren et al. teach compounds of the following formula:



wherein  $X^3$ ,  $X^4$  and  $X^6$  can all be OH or  $SO_4^-$ ,  $R^2$  can be OH,  $SO_4^-$  or substituted amine including NHAc, and  $R^1$  can be hydrogen, alkyl, benzyl, amino acid, nucleotide or polypeptide. The compounds were formed by benzylation followed by treatment with sulfur trioxide-triethylamine complex, followed by hydrogenation to remove the benzyl group [page 2, lines 1-15, lower half of page].

Dahlgren et al. do not teach compounds wherein the substituent at the  $R^1$  ( $R_4$  in claim 1) position is an aryl group other than benzyl.

Greene et al. teach 2- and 4-picolyl ethers as protecting groups for the hydroxyl function [page 99]. They are prepared from their chlorides and can be removed by hydrogenolysis in acetic acid. Greene et al. also teach 1-pyrenylmethyl ether as a protecting group for the hydroxyl group [page 100]. It is introduced using the chloride and can be removed by methods used for benzyl ether cleavage. These are only two examples of a plethora of aryl protecting groups available for the hydroxyl group.

It would have been obvious to one of ordinary skill in the art to prepare the compounds of Dahlgren et al. using aryl protecting groups other than benzyl, such as a picolyl ether or a 1-pyrenylmethyl ether, as taught by Greene et al. Each of these can be introduced easily via the corresponding chlorides and can be removed by hydrogenation, which is compatible with the synthesis of Dahlgren et al. One of ordinary skill in the art could have substituted one protecting group for another and could have predicted that the alternative protecting groups would be effective because of their ease of introduction and removal.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Layla Bland whose telephone number is (571) 272-9572. The examiner can normally be reached on M-R 8:00AM-5:00PM UST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571) 272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Layla Bland  
Patent Examiner  
Art Unit 1623  
September 27, 2007

Shaojia Anna Jiang

  
Supervisory Patent Examiner  
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September 27, 2007